# Grid Enhancing Technologies

## Regulatory landscape – from first steps to wish-list

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**Working for Advanced Transmission Technologies (WATT) Coalition**
**July 24, 2023**

# Working for Advanced Transmission Technologies

WATT

www.watt-transmission.org

**Mission:** The Working for Advanced Transmission Technologies (WATT) Coalition advocates for policy that supports wide deployment of Grid Enhancing Technologies (GETs) to accelerate the clean energy transition and lower energy costs.

Ampacimon
Smart solutions for a dynamic grid

HASI

LINDSEY SYSTEMS

SMART WIRES
REIMAGINE THE GRID

ATECNUM
PowerDonut PD4

HEIMDALLPOWER

newgrid

SOLSYSTEMS

EDF renewables

Invenergy

PINEGATE RENEWABLES

vermont electric power company
VELCO

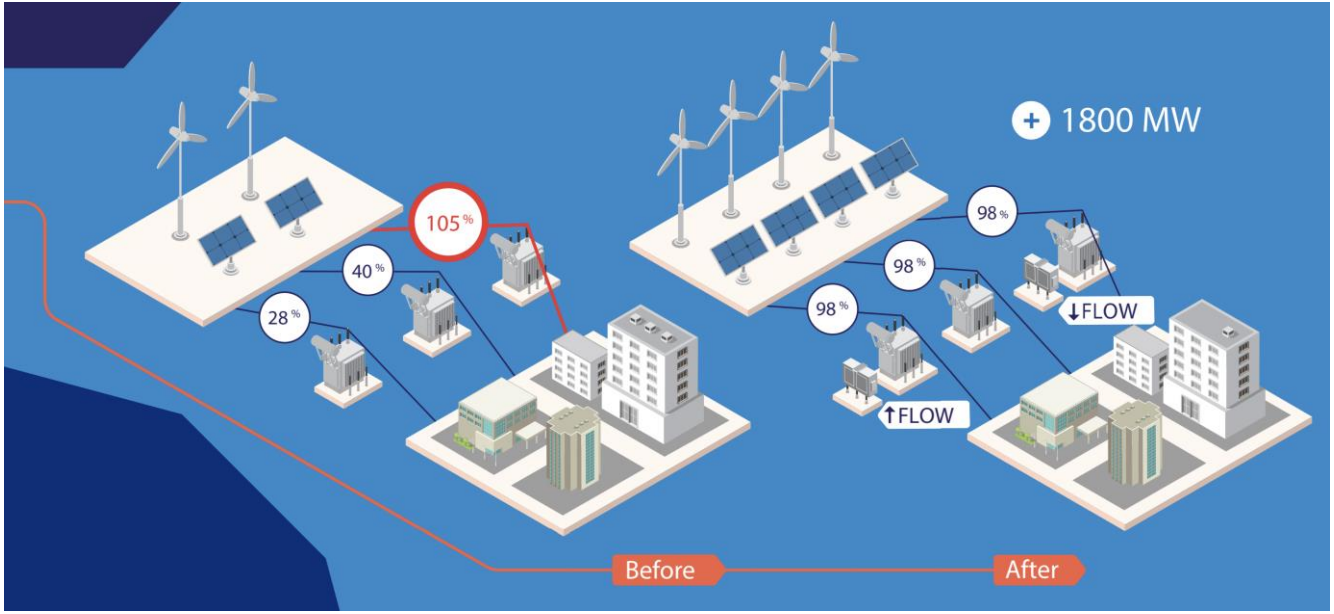
ENGIE

LINEVISION

prisma photonics

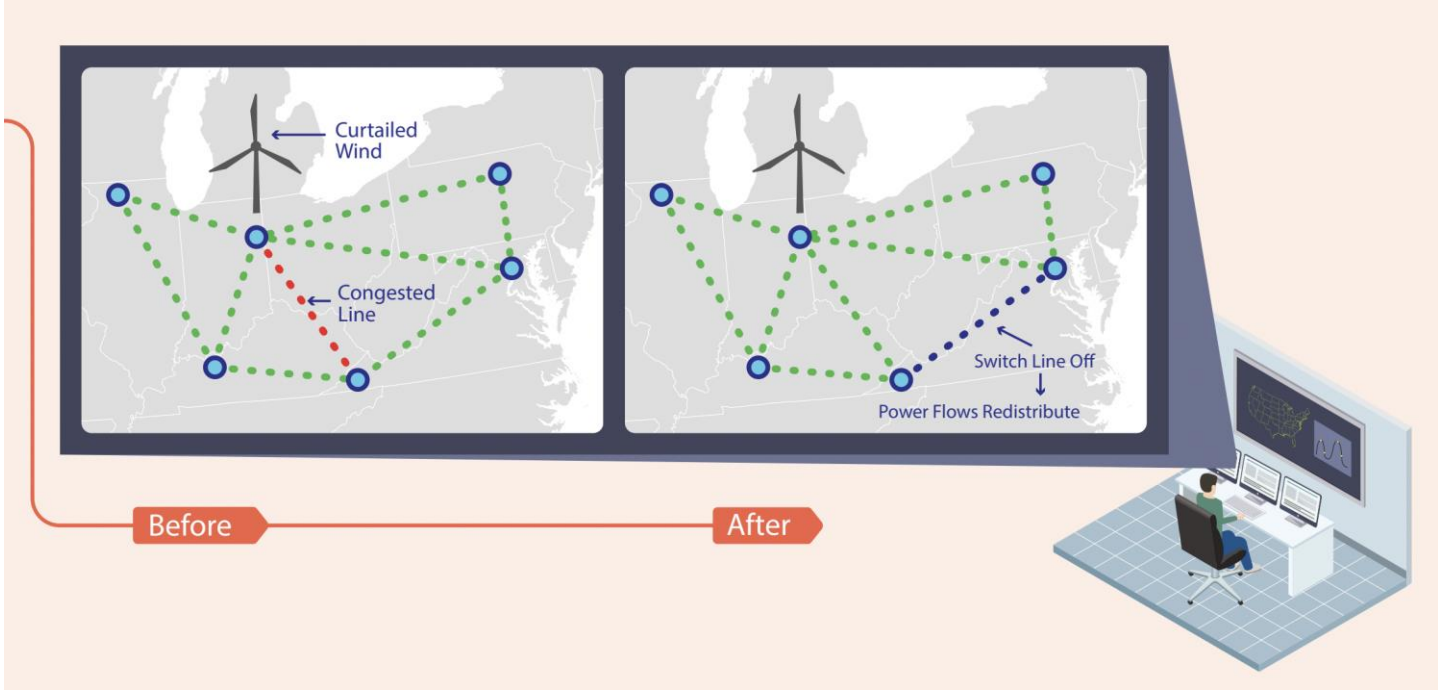
windsim POWER

# Advanced Power Flow Control



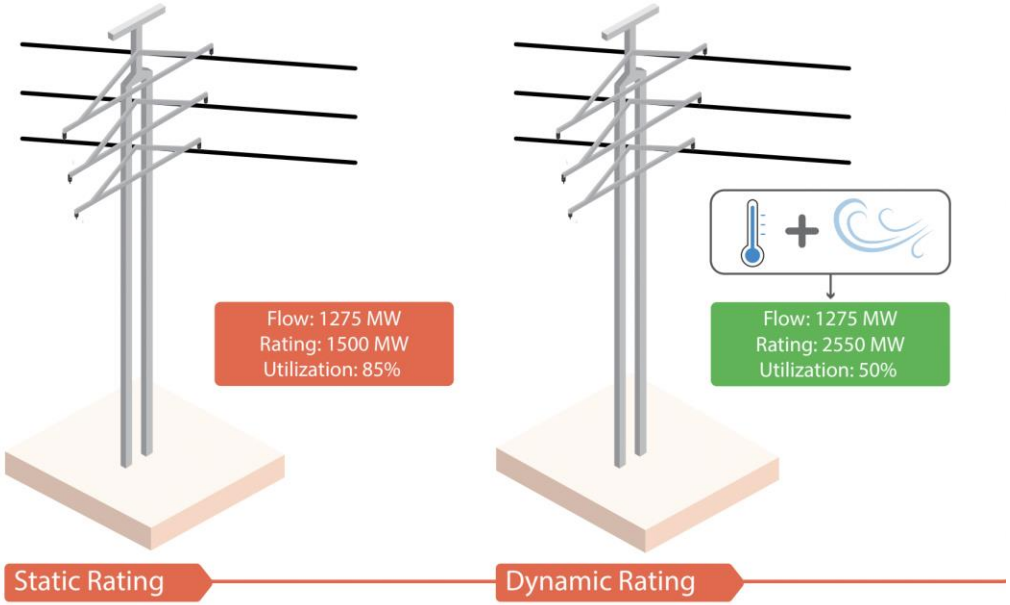

Deployments in the UK by National Grid unlocked capacity for [1.5 GW of new renewable energy saving UK ratepayers over $500 million]

# Topology Optimization




Topology optimization reduced curtailment of one wind farm by 77%

# Dynamic Line Ratings




Results from 2021 deployment in 3 states:

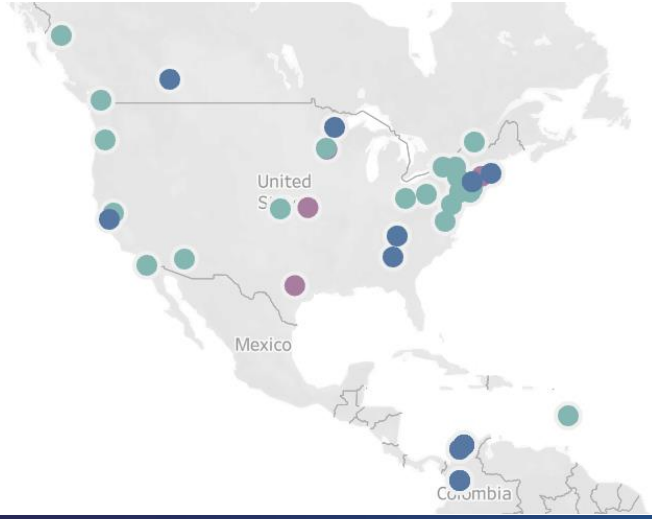
DLR exceeded static reference ratings by

- **9-33% in winter**
- **26-36% in summer**

DLR exceeded static ratings over 85% of the time

From *A Guide to Case Studies of Grid Enhancing Technologies*

# Where does cost-of-service regulation get us? Many pilots, few operational projects

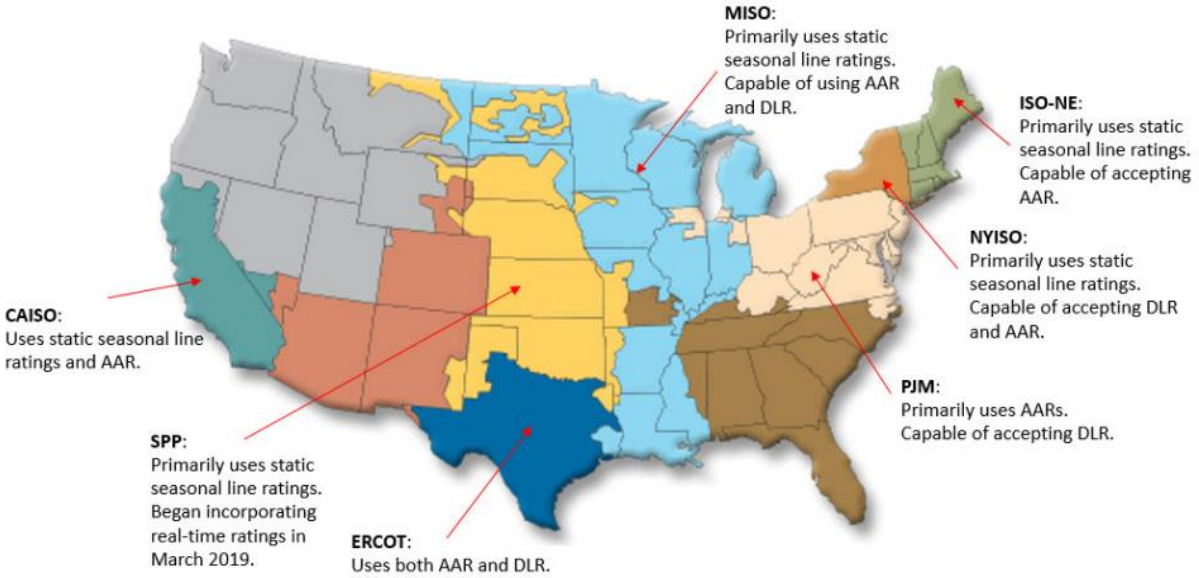



# Key obstacles:

1) Inertia: building familiarity and and integrating GETs into planning and operation processes

2) Incentives: no reward or requirements for efficiency, cost savings, or congestion management

# Examples of action by RTO/ISOs




## Line Ratings ->

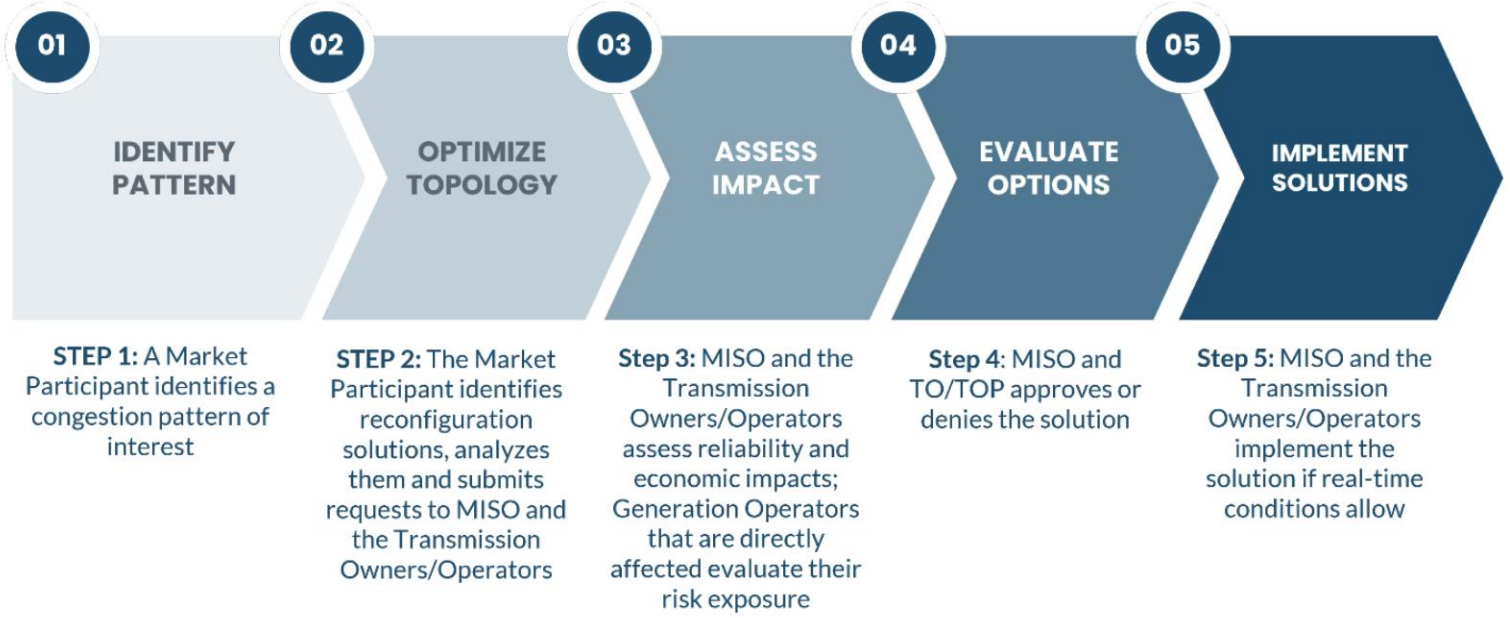
Other

- ERCOT evaluates DLR in economic transmission planning to resolve congestion
- FERC Order 881: All RTOs required to accept DLR by 2025

# Examples of action by RTO/ISOs

## MISO: Congestion Cost Reconfiguration launched June 30!

- Similar process proposed as SPP Strategic Initiative Roadmap #73
- ERCOT IMM's top recommendation for congestion management



# Federal Policy

- FERC planning and interconnection NOPRs include a requirement to consider GETs

- Promising FERC inquiries into
  - Requirements for utilities to evaluate GETs based on a congestion threshold ($2 million/year proposed by PJM)
  - Shared savings incentive – utilities share in value of GETs
  - Independent transmission monitoring to identify opportunities

- DOE programs support deployments through state agencies and utilities - $13 billion in GETs-eligible programs

# GETs for Interconnection – individual projects

- Reduce interconnection costs
- Shorten study and construction timelines
- Serve as bridge projects
- Fewer project withdrawals due to high costs

- **Cost Savings:** DLR could have avoided 1-3% line overloads that would otherwise cost a developer $50-400m
- **Cleaner energy, faster:** GETs deployments are completed in months

WATT

# Working for Advanced Transmission Technologies

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# FERC Incentives Rulemaking

- "…transmission projects that use network management technologies, such as dynamic line ratings, power flow controls, or transmission topology optimization, can provide significant and demonstrable reliability benefits by giving operators better tools to address unforeseen system conditions."
- "…we are proposing specific incentives to facilitate investment in transmission technologies…
- FERC Docket RM20-10-000, March 20, 2020

# Performance Based Ratemaking Delivers in the UK
# RIIO: Revenue = Incentives + Innovation + Outputs

DLR and APFC projects increased transmission capacity by over 2GW, saving millions every year.

WATT shared savings incentive: utility would be granted a portion of congestion cost savings for GETs deployments

- Requires reapplication every three years
- Competitive process for projects >$2.5 million